UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: BSC AGRIC II (LWM)

COURSE CODE: LUM 204 (NEW PROGRAMME)

TITLE OF PAPER: LAND SURVEYING

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER QUESTIONS.

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

SECTION I: COMPULSARY

QUESTION ONE

A)   Briefly discuss the role of signals and symbols in surveying.   **[10 marks]**

B)   State the meaning of the signals and symbols shown in **Figure 1** as used in surveying.   **[20 marks]**

C)   Briefly describe the land surveying process.   **[10 marks]**

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION TWO

A)   Name any three (3) methods of computing areas from maps other than the Simpson's and Trapezoidal's Rules.   **[6 marks]**

B)   The chain surveying data on Table 1 were recorded in the field when chaining and measuring off-sets of a proposed road or track from a near-by embankment. Compute the area between the road and the embankment using both Simpson's and Trapezoidal rules.   **[24 marks]**

Table 1. Embankment chaining field data.

Station	A	B	C	D	E	F	G	H	I	J	K	L
Chainage (m)	0	15	30	45	60	75	90	105	120	135	150	165
Offset (m)	6.3	4.2	3.8	2.1	8.2	9.3	6.7	4.6	3.2	1.2	0.2	1.0

EXAMINATION NUMBER: ....
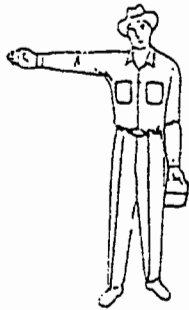
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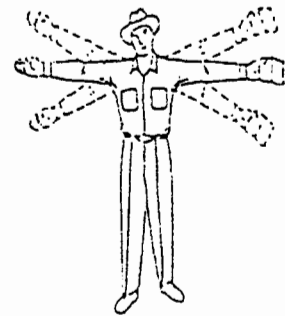
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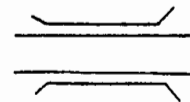x. ....

Figure 1. Common surveying signals and symbols.

QUESTION THREE

a)   State the instruments or techniques that are used in direct distance measurements as well as in optical distance measurements.   **[5 marks]**

b)   Describe how the electromagnetic distance measurement instruments operate.

            [10 marks]

c)   Discuss the role of Surveying as an elementary course which will lay a strong foundation for other courses to be taken later as well as its applications in your future professional lives in Land and Water Management.   **[15 marks]**

QUESTION FOUR

The following are the readings from a profile level survey of a road section of Inyoni Farm in the Lubombo Plateau, Eastern Swaziland. The survey was done by Peter Maziya on 24 December, 1964, which was a partly cloudy day. To do this , a Wild Dumpy level was used for measurement. Note that all readings are in meters. 0.599 (BS, OBM 558.031 AOD), 3.132 (FS), 2.587 (BS), 1.565, 1.911, 0.376 (FS) 2.244 (BS), 3.771, 1.985 (FS), 1.334 (BS), 0.601, 2.002 (FS).

A)   Book and reduce the levels using the rise and fall method (Table 2). Remember to apply the appropriate arithmetic checks.   **[17 marks]**

B)   If the distance from the first point to the last is 250 m, calculate the mean gradient between these points.   **[5 marks]**

C)   Outline any two practical precautions which must be taken for accurate levelling.

            [8 marks]

EXAMINATION N0.:...

Table 2. ....

Date :.. Name & Location Of Site:...

....

Surveyor:....................................... Instrument Type & N0.:...

Weather:..

Back Sight	Intermediate Sight	Fore Sight	Rise	Fall	Reduced Level	Distance (m)	Remarks